



NEWDOS/80™ Version 2 REFERENCE CARD

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This card is a short reference guide for the manual provided by Apparat with NEWDOS/80™ Version 2 released in August, 1981. The user of this reference card must be familiar with that manual and should refer to it frequently when more extensive and detailed information is needed. In those cases of content conflict, the information in the NEWDOS/80 Version 2 manual, including subsequent ZAPs, governs.

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GENERAL STATEMENTS

1. All command statements must be terminated by the ENTER character. Command description will not show the ENTER character.
2. When DOS is at NEWDOS/80 READY waiting for a new command, two types of commands may be entered: (1) DOS commands, see back side, and (2) non-DOS commands such as those used to invoke BASIC, EDTASM, DIRCHECK, SUPERZAP, SCRIPTSIT, VISICALC, PROFILE and other user programs. When DOS is at MINI-NEWDOS/80 READY, only DOS commands may be entered.

EXPLANATION OF TERMS

alpha — any character, A to Z.

a/n — alphanumeric character, any of A to Z and 0 to 9.

dn — a *number*, 0 to 3, of a physical *disk drive*.

dpwd — *diskette password*, 1 to 8 *a/n* characters, the first being *alpha*.

pwdn — If *passwords* are enabled, *pwdn* means *dpwd:dn*. If *passwords* are disabled, *pwdn* means *dn*. *dpwd* and *dn* are defined above.

file — A disk *file* identifier (filespec) of the form *name/ext.fpwd:dn* where:

name — The *name* of the *file*, 1 to 8 *a/n* characters, the first being *alpha*.

ext — *name extension*, 1 to 3 *a/n* characters, the first being *alpha*. (optional)

fpwd — *file password*, 1 to 8 *a/n* characters, the first being *alpha*. (optional)

dn — the *number*, 0 to 3, of the *disk drive* containing the diskette containing the *file*. (optional)

yn — A Yes or No specification, given as either Y or N, used to turn on or off a DOS feature. In most cases, absence of the *yn* parameter implies Y.

date — The date in mm/dd/yy format.

time — The time in hh:mm:ss format.

BASIC Enhancements

BASIC is invoked from DOS READY by one command of the form:
BASIC *m, n, cmd*

where *m* is the memory size, *n* is the number of files and *cmd* is any BASIC direct command. Any or all of *m, n*, or *cmd* may be left out.

BASIC — Loads BASIC into the computer with memory size set to DOS's current HIMEM value, allocates for 3 files and displays READY.

BASIC,1,RUN "CHAINBLD/BAS:0" — Loads BASIC into the computer with memory size set to DOS's current HIMEM value, allocates for 1 file and executes the BASIC direct command RUN "CHAINBLD/BAS:0"

BASIC★ — If possible, BASIC is loaded, the previous values for *m* and *n* are used and the previous text is re-instated.

Single key commands:

1. Shift-up-arrow or ; — List the text's first line.
2. Shift-down-arrow or / — List the text's last line.
3. up-arrow — Scroll one line toward text beginning.
4. down-arrow — Scroll one line toward text end.
5. : — Scroll display page toward text beginning.
6. @ — Scroll one display page toward text end.
7. . — List the current line.
8. , — Edit the current line.

The BASIC commands LIST, EDIT, DELETE and AUTO can be shortened to L, E, D or A respectively provided (1) the letter is the command's first character, (2) the letter is followed by a period or a line number, and (3) the command does not contain an = character.

E80 is the same as EDIT80

D200-340 is the same as DELETE 200-340

DI *line1,line2*

Delete text line *line1* and insert as *line2*. References to text line *line1* are not changed; use RENUM for that.

DI130,43

DU *line1,line2*

Duplicate text line *line1* as *line2*. Text line *line1* is not deleted.

DU500,505

RENEW — Reinstatate the BASIC text just NEWed.

REF — Display/print the line numbers of text lines containing references to all line numbers, integers and variables. REF will also display references to a single line number, integer, string, function code (reserved word) or a group of packed or unpacked text characters, and then allows displaying of each referencing text line in turn with the opportunity to edit or delete each of those lines.

REF *xx* — Display the line numbers of all references to *xx* where *xx* is a line number, an integer or a variable name.

REF=*xxxx* — Display the line numbers of all occurrences of *xxxx* where *xxxx* is a group of text characters that, before the search, are packed according to the standard BASIC text packing. *xxxx* can (but need not) consist solely of a function code. (i.e. GOTO, PRINT, CVI).

REF"*xxxx* — Display the line numbers of all occurrences of *xxxx* where *xxxx* is a group of text characters that are not packed before the search. This format is used to find occurrences of remarks or characters within strings.

REF — Display the first or next qualifying text line for the last REF *xx*, REF=*xxxx* or REF"*xxxx* command executed. Using repeated REFs, the user may inspect/edit/delete the qualifying text lines.

REF@*line1* — Same as REF above except that the first qualifying text line with line number greater than or equal to *line1* is displayed.

REF★ — Display a full reference list.

REF\$ — Print a full reference list.

REF★*xx* — Continue displaying a full reference list starting at *xx* where *xx* is a line number, integer or variable name.

REF\$*xx* — Continue printing a full reference list starting at *xx*.

When *xx* is a variable name, do not suffix a type character (i.e., \$, %, ! or #) or a subscript. For long lists, press BREAK to pause, ENTER to continue and up-arrow to terminate.

REF A REF 2030 REF=LPRINT REF"remark

REF REF@30210 REF★ REF\$ REF★A

RENUM *s,t,p,q*

s — First new line number assigned (default=10)

t — Renumbering increment (default=10)

p — Old number of first line renumbered (default=1)

q — Old number of last line renumbered (default=65529)

RENUM 100,100 — Renumber entire text with 1st line assigned line number 100, the 2nd 200, etc.

RENUM 30202,2,1000,2040 — Renumber the text lines 1000 thru 2040, assigning the first number 30202, the 2nd 30204, etc., and move the renumbered lines to the correct text positions.

RENUM *s,t,p,q,X* — Same as above except undefined line numbers less than *p* and greater than *q* are not errors.

RENUM , — Same as RENUM,10,10,1,65529

RENUM U — Same as above, except only the error checking is done; the renumber is not done. The U parameter may be specified for any of the above formats. If the U parameter is not

specified and any errors are encountered, the renumber is also not done. Errors are displayed as:

- e/U — text line e does not exist
- e/X — text line e has a syntax error
- e/S — text line e has a bad line number

RUN, file1, V — BASIC program *file1* is loaded into memory and its execution commenced with the previous contents of variables and fileareas left unchanged.

MERGE, file1 — MERGE will accept either an ASCII text file or a packed text file. A MERGE executed during program execution loads overlay text while variables and fileareas remain unchanged; see manual for required conditions.

BASIC statement CMD

CMD"C" — Eliminates spaces and remarks from the text

CMD"C",S — Removes spaces only

CMD"C",R — Removes remarks only

CMD"E" — Displays DOS error message for BASIC's latest DOS error.

CMD"J" — *date1, date2* — Calendar date conversion

CMD"O", parameters — In-memory array sort

CMD"S" — Exit BASIC to DOS READY.

CMD"S=command" — Exits BASIC to DOS and DOS immediately executes the command. At the command's conclusion, BASIC is not reentered.

CMD"F" functions:

CMD"F", DELETE *line1-line2* — During program execution, the text lines from *line1* to *line2* are deleted. Program variables and fileareas remain unchanged. See the manual for required conditions.

CMD"F=xxx" functions:

CMD"F=POPS" — Purge all GOSUB levels and FOR-NEXT loops.

CMD"F=POPR" — Purge current GOSUB level and its FOR-NEXT loops.

CMD"F=POPEN" — Purge most recently established existing FOR-NEXT loop.

CMD"F=SASZ", *exp1* — BASIC's string area size is set to *exp1* without clearing existing variables.

CMD"F=ERASE", *vn1, vn2, ...* — The specified variables are CLEARED.

CMD"F=KEEP", *vn1, vn2, ...* — All variables are CLEARED except those specified.

CMD"F=SWAP", *vn1, vn2* — Swap contents of two variables of the same type.

CMD"F=SS" — Turn on single stepping when text line *line1* commences execution.

CMD"F=SS", N — Turn off single stepping.

CMD"command" — BASIC calls DOS to execute the two or more character *command*. When the *command's* execution is finished, BASIC's execution continues with the next statement. For APPEND, COPY, FORMAT, SUPERZAP or DIRCHECK, BASIC must have at least 8000 bytes free, exclusive of the string area. Single drive, two diskette COPY will be rejected.

BASIC I/O EXTENSIONS

SUPPORTED FILE TYPES

NEWDOS/80 Disk BASIC supports four types of disk files:

PRINT-INPUT — The TRSDOS sequential file processing that uses PRINT and INPUT statements.

FIELD-ITEM — The TRSDOS random file processing that uses FIELD statements.

MARKED-ITEM — A file where each data item is prefixed with one or two control characters specifying the item. Marked-item files have three subtypes:

MF — File's records all of the same length.

MU — File's records of varying length. Each record starts with a one byte SOR item.

MI — File is not record segmented.

FIXED-ITEM — A file where the length and characteristics of the items is determined by the program. Fixed-item files have two subtypes:

FF — File's records all of the same length.

FI — File is not record segmented.

OPEN Statement

OPEN, mode, fan, file1, type, len

mode is a string value specifying the operations allowed:

I — Open for input only. Position at file start.

O — Open for output only. EOF set=0. Position at file start.

E — Open for output only. Position at file end.

R — Open for random input and output. Position at file start. File may be extended.

D — Same as R except file may not be extended.

fan — filearea number.

file1 — a string value = file's filespec.

type — a string value specifying the file subtype (MF, MU, MI, FF or FI). Not used for field-item or print-input files.

len — Length of file's records. Required for field-item, MF and FF files. Optional for MU files. Not used for MI, FI and print-input files.

OPEN "E", 1, "PRINT/DAT", "MU"

OPEN "R", 2, "CUSTOMER/DAT:2", "FF", 67

OPEN "R", 1, "CUSTOMER/DAT:2", 67

GET and PUT statements

GET/PUT *fan*
GET/PUT *fan, fp*
GET/PUT *fan, fp, IGELSN*
GET/PUT *fan, fp,, IGEL*;

fan — filearea number

fp — file positioning to be used before actual data transfer, if any.
(null) — Next record (MF, MU, FF and field item). Next item (MI and FI)

★ — Next item. Error if current MF, MU or FF record has no more items. Illegal for field-item

— File is repositioned to the last record read or written. Error if REMRA invalid.

\$ — If REMBA valid, file is repositioned as for the last data transfer GET or PUT.

!rba — position to rba number of bytes from the file beginning (range 0 to 16,777,215).

!% — position to end of file

!\$rba — same as !rba except no *IGEL* or *IGELSN* may be specified; only positioning is wanted. REMRA and REMRA are marked invalid.

!\$% — same as !\$rba, except positioning to end of file

!#rba — set rba as the new EOF value.

rn — position to the start of record rn (range 1 to 32767)

& — An *IGEL* or *IGELSN* not allowed, and file positioning not changed. The file area buffer, if updated, is written to disk.

&& — Same as & with the addition that the file EOF is updated to the directory

% — Psuedo FIELD function. Not used too much; see manual.

IGEL — Item Group Expression List. A series of zero or more expressions, separated by commas and terminated by a semi-colon, specifying which data is to be transferred, nulled or skipped during the GET or PUT function. *IGELs* are used for marked-item and fixed item processing but not for field-item. An individual expression of an *IGEL* takes one of the 5 forms, where *len* is a value 0 - 255.

exp — Almost always the name of a scalar or array variable. The names should include a type symbol. For PUT to marked-item files, *exp* can be almost anything legal on the right side of a LET statement. When *exp* is a string, the (*len*) *exp* form below is required for fixed-item files and optional for marked-item files.

(*len*)*exp* — a prefixed string expression where *exp* is a string as discussed above and *len* is a file item length for fixed-item files and the limiting item length for marked-item files.

(*len*)\$ — For fixed-item files, *len* number of bytes are bypassed; illegal for marked-item files.

(*len*)# — For GET from fixed-item files, operates the same as (*len*)\$ and for marked-item files, skips over the next item. For PUT, operates for fixed-item files by writing *len* number of zero bytes and for marked-item by writing a string item with *len* number of null bytes.

(null) — For GET from marked-item files, skips over the next item. Illegal in all other situations.

IGELSN — The line number of the first of one or more text lines containing the *IGEL*.

GET 1 , , 100

PUT 1 , , 100 - note, since this and the previous examples have the same *IGELSN*, they use the same *IGEL*.

GET 1, 30 , , (20)A\$, B%(X);

PUT 1 , !1000 , , C!, D#, (10) E\$;

LOC function

LOC (*fan*) — returns the number of the last record read or written (MF, FF and field-item files only)

LOC (*fan*)\$ — returns -1 if current file positioning >=EOF; else returns 0

LOC (*fan*)% — returns a *rba* value = the file's EOF.

LOC (*fan*)! — returns *rba* value of the position of the next record (MF, MU, FF and field-item files) or the next byte (MI, FI and print/input files).

LOC (*fan*)# — returns the *rba* value of REMRA; error if REMRA invalid.

DOS FUNCTIONS and FEATURES

DFG — MINI-DOS

Pressing the D, F and G keys activates MINI-DOS. Any DOS command except APPEND, COPY, FORMAT, CHAIN or DO may be executed under MINI-DOS. MDRET resumes the interrupted function. MDBORT aborts the interrupted function and goes to DOS READY.

JKL — SCREEN PRINT

Pressing the J;K and L keys or executing DOS command JKL causes the current contents of the display screen to be sent to the printer. All byte values are first modulated to ASCII codes 0 to 127 and then all characters whose ASCII codes are less than 20H or greater than that specified by SYSTEM option AX are printed as periods.

CHAINING

Executing CHAIN or DO command initiates

chaining. Chaining may be paused (right-arrow) or terminated (up-arrow) if SYSTEM option BC=Y. Chain file records prefixed with the special characters below are not sent as keyboard input but instead are interpreted as follows:

- / ./ 0name1—Start of chain file section *name1*.
- / ./ 1msg1—Display message with pause. Press ENTER to continue.
- / ./ 2msg1—Non-displayed internal remark.
- / ./ 3msg1—Display message without pause.
- / ./ 4name1—Chaining continues at chain section *name1* within the same file.
- / ./ 5ynd—Performs as DOS command CHNON, *ynd*.

Proper Chaining execution requires DOS keyboard scan routines be used, (see system option AJ).

DOS-CALL

(assembly language programmers only)

All DOS commands and certain circumspect non-DOS commands may be executed by simply moving the command (terminated by 0DH character) into a buffer and calling the DOS routine at 4419H. DOS-CALLs may be nested; remember APPEND, COPY and FORMAT use the 5200H - 6FFFH region. DOS-CALL always uses the user's stack.

SUPERZAP

The main menu is reasonably straight forward; only the two most common modes are given here.

DISPLAY MODE

- X — Return to menu
- R — Redisplay same sector/memory page
- + or ; — Scroll forward one sector/memory page
- — Scroll backward one sector/memory page
- J — Specify new parameters for same display type
- K — Specify new sector within current disk/file/memory
- SCOPY — Copy current sector to specified location. SCOPY allows a sector's protection state to be changed.
- F, *xx*, *hb1*, *hb2*, *hb3*, *hb4* — Starting at relative position *xx* in the current sector, find the first occurrence of the 1 to 4 bytes specified.
- F, *hb1*, *hb2*, *hb3*, *hb4* — Same as above except starts at the beginning of the file/diskette/memory.
- L, *hb1*, *hb2*, *hb3*, *hb4* — Same as above but used with load module files to search only the object code.
- F — Continues the search for all 3 formats above
- EXIT — Exit SUPERZAP
- MOD*xx* — Exit display mode and enter modify mode using the current sector/memory page, positioning the cursor at relative location *xx* within the page.

MODIFY MODE

- space or right-arrow — Advance cursor one position
- left-arrow — Retard cursor one position
- shift-right-arrow — Advance cursor four positions
- shift-left-arrow — Retard cursor four positions
- down-arrow — Move cursor down one line
- up-arrow — Move cursor up one line
- Any character 0 to 9 or A to F — replaces the hex digit at the cursor position and advances the cursor one position.
- ZT*xx* — Zero all hex bytes from the cursor position through relative byte *xx*.
- RT*xx*, *jk* — Replace all bytes from the cursor position through relative byte *xx* with the hex digits *jk*.
- Q — (sector operations only) Cancel pending update, exit modify mode and enter display mode.
- ENTER — Exit modify mode and enter display mode after (for sector operations) writing the sector to disk.

123 — DEBUG FACILITY

The DEBUG facility is intended for assembly language programmers and others interested in what exists in main memory. DEBUG is normally entered by simultaneously pressing the 1, 2 and 3 keys (if SYSTEM option AE=Y), but it can also be entered every time a user program (i.e., BASIC, SCRIPTSIT, etc.) commences execution if DOS command DEBUG, Y has previously been executed. Further, DEBUG can be entered by program control by either the RST 30H or the CALL 440DH instructions. Once in DEBUG, the following commands are available:

- X — Shift to X display mode (contents of all registers and three 64 byte memory areas).
- S — Shift to S display mode (one 256 byte memory area).
- D*addr1* — Display the 64 bytes starting at *addr1* (X display) or the 256 byte block containing *addr1* (S display).
- ; — Advance the display 64 (X display) or 256 (S display) bytes.
- — Retard the display 64 (X display) or 256 (S display) bytes.
- Commands D, ;, and - may be prefixed with a 2 or a 3 to indicate 2nd or 3rd X display areas.
- M*addr1* — Enter S display and modify modes at *addr1*. Keying a hexadecimal digit changes the digit at the cursor and main memory position. The space and arrow keys are used to move the cursor within the display. ENTER terminates the modify mode.
- F*addr1*, *hb1*, *hb2*, *hb3*, *hb4* — Search memory from *addr1* for an occurrence of the 1 to 4 hex bytes specified. The matching address is displayed on the X display's 3rd line, with a 0000 address indicating no match. The command F continues the search.
- I — Single step through the program (current inst loc > 51FFH).
- C — Same as I, but CALL executes called routine.
- R*dreg*, *value1* — Put *value1* into the register pair *dreg*.
- L*dn1*, *drs1* — Load disk drive *dn1*'s relative sector *drs1* into the DOS buffer (Model I=4200H, Model III=4300H).
- WR*dn1*, *drs1* — Write DOS buffer to drive *dn1*'s relative sector *drs1*.
- G*addr1*, *addr2*, *addr3* — Restore registers and resume execution at *addr1* with breakpoints optionally set at *addr2* and/or *addr3*.

DOS COMMANDS

General statements for DOS commands.

1. The user should refer to chapter 2 of the manual for more detail as needed.
2. If your NEWDOS/80 does not use passwords, then the *fpwd* parameter is not needed in file specifications and the *dpwd* parameter is not needed in PDRIVE, PROT, PURGE or SYSTEM.
3. Commas may be replaced by spaces, except where two consecutive commas are used to indicate a null parameter between them.
4. The word TO is always optional.
5. Commands may be in either lower or upper case or a combination thereof. Lower case useage in non-DOS commands is dependent upon the function involved.

APPEND, *file1*, TO, *file2*

Append the contents of *file1* to the end of *file2*.

APPEND,NEW/DAT:0,TO,OLD/DAT:1

ATTRIB, *file1*, *options*

Change the specified attributes (at least one required) of *file1*.

INV — DIR will not display the file unless parameter I is specified.

VIS—DIR will display the file.

PROT=xxx — Assign file protection level xxx=

LOCK — no access

EXEC — execute

READ — execute or read

WRITE — execute, read or write

RENAME or NAME — execute, read, write, or rename

KILL — execute, read, write, rename or kill

FULL — all operations.

ACC=*fpwd1* — *fpwd1* becomes the file's access password

UPD=*fpwd2* — *fpwd2* becomes the file's update password

ASE=*yn* — Enable automatic allocation of additional file space.

ASC=*yn* — Enable automatic de-allocation of excess file space.

UPD=*yn* — Turn on/off the file's updated flag.

ATTRIB,CNTRLDAT/CMD,UPD=KKKJJJ,PROT=READ

AUTO, *doscmd*

The DOS command *doscmd* is stored in the system diskette's directory for automatic execution at subsequent re-boots. AUTO alone eliminates this automatic re-boot action.

AUTO,BASIC,RUN"MYPROG/BAS:0"

BASIC2

(Model I only) Enter Level II non-disk BASIC (no DOS, no disk BASIC)

BLINK, *yn*

Enable/disable cursor blinking.

BLINK,N

BOOT

Re-boot the DOS system.

BREAK, *yn*

Enable/disable the BREAK key

BREAK,N

CHAIN, *file1*, *sectionid*

Enter keyboard input chaining mode, starting at the beginning of *file1* if *sectionid* is not specified or the beginning of the section *sectionid* of *file1* if section was specified. JCL is assumed as the name extension if none was specified in *file1*.

CHAIN,MYCMDS/DAT:1

CHAIN,SPECCMDS,FUNCT1

CHNON, *option*

Alter chaining state. Options are:

N — Chaining is temporarily suspended and the current DOS-CALL level, if any, is exited.

Y — Chaining is resumed at the point in the chain file where it left off. Current DOS-CALL level, if any, is exited.

D — Same as Y except the current DOS-CALL level, if any, is not exited.

CHNON,Y

CLEAR, START=*addr1*, END=*addr2*, MEM=*addr3*

Clear all routes, dequeue all timer and * name routines, set HIMEM to *addr3* or to highest memory address, zero user memory from 5200H or *addr1* to HIMEM or *addr2*.

CLEAR,START=7000H,MEM=BFFFFH

CLEAR

CLOCK, *yn*

Turn on/off the time display on the screen.

CLOCK,N

CLS

Clear the display.

COPY, *file1*, TO, *file2*, *options*

Single file copy. Only options SPDN and DPDN allowed.

COPY,XXX/DAT:0,TO,YYY/DAT:1

COPY,\$file1,TO,file2,options

Single file copy with system diskette conflict. Only options SPDN and DPDN allowed. \$ indicates if at least one of file1 or file2 specifies drive 0, that diskette is not the current system diskette. If both files use drive 0, they are on the same diskette.

COPY,\$XXX/DAT:0,TO,YYY/DAT:1

COPY,dn1,file1,TO,file2,options

Single drive, two diskette, single file Copy. Only options SPDN and DPDN allowed.

COPY,1,XXX/DAT,YYY/DAT

COPY,dn1,TO,dn2,date,options

Sector by sector full diskette copy. Both diskettes must have the same granules-per-lump; otherwise the CBF (Copy-By-File) type of COPY must be used. Options are:

FMT — Format the destination diskette. FMT is the default if NDMW specified.

NFMT — Do not format the destination diskette.

Y — User doesn't care what was previously on the destination diskette. Y is the default if none of N, ODN, ODPW, DDND, KDN or KDD are specified.

N — Reject COPY if destination diskette contains data.

NDMW — No Diskette Mount Waits. All diskettes are already mounted; the system is not to ask for them. If an error occurs, terminate the COPY.

SPDN=dn3 — The PDRIVE specifications used for source I/O are those listed for drive dn3 in the PDRIVE display.

DPDN=dn4 — The PDRIVE specifications used for destination I/O are those listed for drive dn4 in the PDRIVE display.

SN=name3 — If the Source diskette's Name is not name3, the operator is asked whether or not to continue.

SPW=dpwd1 — The Source diskette's PassWord must be dpwd1 or format/copy will not be done.

ODN=name1 — If the destination diskette's old name is not name1, the operator is asked whether or not to continue.

DDND — Display the Destination diskette's old Name and Date and ask the operator whether or not to continue.

KDN — The destination diskette is to retain its old name.

KDD — The destination diskette is to retain its old date.

NDN=name2 — name2 is the destination diskette's new name.

USD — The destination diskette is to receive the source diskette's date.

BDU — Bypass Directory Update. Make a mirror image copy without any adjustments to destination control or directory information.

COPY,0,1,10/06/81,FMT,NDMW

COPY, 0,0,, SN=OLDDISK, ODN=NEWDISK

COPY,dn1,dn2,date,CBF,options

Multiple file copy. Distinguished from full diskette copy by the CBF (Copy By File) parameter. One, some or all of the files, excluding BOOT/SYS and DIR/SYS, of the source diskette are copied to the destination diskette. All excluded files and all non-allocated granules are not copied. If a NEWDOS 80 system disk is being created, FMT must be specified. All of the above options, except BDU, are useable by this copy. If a system file is to be copied and it is not already in the destination diskette, FMT should be specified. Additional options are:

USR — Copy only user files (system and invisible files are excluded).

/ext — Copy only files with name-extension ext.

UPD — Copy only files flagged as updated.

ILF=file3 — Copy only files listed in file file3.

XLf=file4 — Exclude all files listed in file file4.

DFO — Copy only those source files already represented in the destination diskette directory.

CFWO — Check Files With Operator. The operator is asked whether or not to copy files which otherwise qualify for the copy.

ODPW=dpwd2 — The destination diskette's old password must be dpwd2 or the format/copy will not be done.

DDSL=ln1 — Formatting will start the directory at the beginning of lump ln1.

DDGA=gc1 — Format will allocate gc1 granules to the directory.

COPY,0,1,01/24/82,CBF,NFMT,CFWO,USR

CREATE,file1,LRL=sz1,REC=count1,ASE=yn,ASC=yn

Create new file file1 or use old file file1 as the new file. The file record size is set to sz1, space for count1 records is allocated, the records filled with zeroes and EOF set to the end of those records. Automatic space allocation and deallocation set according to the ASE and ASC options respectively. Defaults for LRL, REC, ASE and ASC are 256, 0, Y and Y respectively

CREATE,XXX/DAT:1,REC=100

DATE Display the current date.

DATE,date1 Set date1 as the computer's current date.

DATE,02/19/82

DEBUG,yn Enable/disable debug entry at user program start.

DEBUG,Y

DIR,dn1,options

Display the user files accounted for in the directory of the diskette mounted on drive dn1. Options are:

A — Display space allocation, record size and count, and attribute information.

S — Display system files.

I — Display invisible files.

U — Display only updated files.
/ext — Display only those files with name-extension ext.
P — Send the output to the printer instead of the display.
DIR,QA,/DAT,U

DO, file1, section Performs identical to CHAIN

DUMP, file1, startaddr, endaddr, entryaddr, reladdr

Dump the contents of memory locations *startaddr* thru *endaddr* to disk file *file1*. If *entryaddr*=0FFFFH, the file is readable via SUPERZAP DBDM mode; otherwise the file is stored as a load module with load addresses offset by the value *reladdr* — *startaddr*. Defaults for *entryaddr* and *reladdr* are 402DH and *startaddr* respectively.

DUMP,PROGFILE/CMD:0,5200H,63F3H,5530H

ERROR, xx Display error message for DOS error xx.
ERROR,24

FORMAT, dn1, dname, date, dpwd, options

Format the diskette on drive *dn1* and set up the directory, boot and control information using name *dname*, *date* and password *dpwd*. Defaults for *dname*, *date* and *dpwd* are NOTNAMED, the current date and PASSWORD respectively. Options Y, N, NDMW, DDND, ODN, KDN, KDD, BDU, DDSL, DDGA and DPDN are defined under COPY. Additional options are:

PFST=*tn3* — Partial Format Starting Track. Start format at track *tn3*. Directory and boot information are not set up.

PFTC=*tc3* — *tc3*=the number of tracks to format under partial format. Default = 1.

RWF — RaW Format. Format all tracks of the diskette, ignoring all formatting errors and leave off system information.

FORMAT,0,AAA0,08/01/81,PSWD,Y

FORMAT, 1,,,Y

FORMS, WIDTH=xxx, LINES=yyy Model III only

Set the printer characters per line = *xxx* and lines per page = *yyy*. If a parameter is missing, its value is not changed.

FORMS, WIDTH=80, LINES=60

FREE Display the number of free granules and free directory entries for each diskette mounted.

HIMEM Display HIMEM value.

HIMEM, addr1 Set *addr1* as HIMEM value.

DOS maintains a highest memory value, HIMEM, to be used as an memory upper limit by user programs so that programs loaded above that value will be protected.

HIMEM, 65000

JKL Copy the contents of the screen to the printer.

KILL, file1

Delete *file1* from the diskette mounted either on the drive specified or, if none specified, the lowest numbered drive containing that file.

KILL,XXX/DAT:1

LC, yn

If *yn*=Y, the keyboard will accept lower case a — z. If *yn*=N, the keyboard will convert lower case a — z to upper case.

LC,Y

LCDVR, yn1, yn2 Model I only

If *yn1*=Y, the keyboard driver is enabled and the lower case function LC is set according to *yn2*. If *yn1*=N, the keyboard driver is disabled and the LC function is inoperative.

LCDVR,Y,Y

LIB Display DOS library commands.

LIST, file1, startline, linecount

List text file *file1* on the display, starting at line *startline* and displaying *linecount* number of lines. The defaults for *startline* and *linecount* are 1 and 65535 respectively.

LIST, TEXTFILE/PT1:0

LOAD, file1

Load the machine language program file *file1* into main memory, but do not execute it.

LOAD, OVERLAY/OBJ:0

MDBORT Terminate MINI-DOS and go to DOS READY

MDCOPY, file1, TO, file2

This single file COPY is legal under MINI-DOS; no filespec truncation, options or diskettes swaps allowed.

MDCOPY,XXX:1,TO,YYY/DAT:0

MDRET Exit MINI-DOS and return to the main program, continuing its execution where left off when DFG was pressed.

PAUSE, msg

Display message *msg* and wait on the operator to press ENTER.

PAUSE, MOUNT INVENTORY DISKETTE ON DRIVE 1

PDRIVE, pwn1 Display PDRIVE table

PDRIVE, pwn1, dn2, options Update drive *dn2*'s data and display drive *dn1* diskette's PDRIVE table.

Options are:

TI=*type1* — *Type of Interface*, consisting of one or more of the following (see manual for proper combinations);

- A — Standard TRS-80 disk interface.
- B — Model I only. OMIKRON mapper.
- C — Model I only. PERCOM doubler interfacier.
- D — Model III only. Apparat disk controller.
- E — Model I only. LNW type disk interface.
- H — Head settle delay is to be done on drive change.
Required for 8" drives.
- I — Sector 1 is lowest numbered sector on each track.
- J — Track 1 is the lowest numbered track on the diskette.
- K — Track 0 is formatted in opposite density from the rest of the tracks, and is usable only during boot.
- L — Two step pulses between tracks are used.
- M — Model III TRSDOS or Model I TRSDOS 2.3B or higher diskettes to be mounted.

TD=*type* — *Type of Drive* where *type* values are:

- A — 5 inch, single density, single sided.
- B — 8 inch, single density, single sided.
- C — 5 inch, single density, double sided.
- D — 8 inch, single density, double sided.
- E — 5 inch, double density, single sided.
- F — 8 inch, double density, single sided.
- G — 5 inch, double density, double sided.
- H — 8 inch, double density, double sided.

TC=*tc1* — *tc1* is the number of tracks on diskettes mounted on the drive.

SPT=*sc1* — *sc1* is the number of sectors per track.

TSR=*rc1* — *rc1* is the track stepping rate code, 0=5ms, 1=10ms, 2=20ms and 3=40ms.

GPL=*gc2* — *gc2* is the number of granules (2 to 8) per lump.

DDSL=*ln1* — *ln1* is the number of the lump whose first sector is the directory's first sector. Used only during formatting.

DDGA=*gc1* — *gc1* is the number of granules (2 to 6) assigned to the directory. Used only during formatting.

A — If the display shows no errors, activate the PDRIVE attributes as the current attributes in main memory. Subsequent I/O will use these attributes. If A not specified, subsequent I/O (except that via SPDN or DDPN (see COPY)) will not use any new attributes until re-boot.

PDRIVE,0

PDRIVE,0,2,TI=A,TD=E,TC=40,SPT=18,TSR=3,GPL=6,DDSL=17,DDGA=2

PDRIVE,0,1,TI=BH,TD=B,TC=77,SPT=17,A

PRINT,*file1*,*startline*,*linecount*

Format and execution the same as LIST, except output to printer.

PROT,*pwn1*,*options*

Alter diskette control information. Options (one required) are:

NAME=*name1* — Diskette name is changed to *name1*.

DATE=*date1* — Diskette date is changed to *date1*.

RUF — Reset (turn off) the Update Flag for all the diskette's files.

PW=*dpwd2* — Diskette password is changed to *dpwd2*.

LOCK — The diskette password is set as both the access and update password for all of the diskette's user files.

UNLOCK — All the diskette's user files are set having no access or update passwords.

PROT,1,NAME=NEWNAME

PURGE,*pwn1*,*options*

For each qualifying file, the operator is asked whether or not the file is to be killed. If so, it is killed immediately. BOOT/SYS and DIR/SYS are excluded. Options are:

/ext — only files with name-extension *ext* qualify.

USR — only user files qualify (excludes system and invisibles).

PURGE,1,USR

R Repeat the previous DOS command

RENAME,*file1*,TO,*file2*

Change the name and name-extension of file *file1* to that of *file2*. *file2* must not contain a password or drive #.

RENAME,OLDNAME/DAT:1,TO,NEWNAME/PTA

ROUTE Display existing routes.

ROUTE,CLEAR Clear all routes.

ROUTE,xxx Clear routes for device xxx

ROUTE,xxx,yyy(s)

Clear routes for device xxx and set routing for device xxx to the one or more devices/routines specified. Device codes are KB (keyboard), DO (display), PR (printer), RI (RS-232 in, Model III only), RO (RS-232 out, Model III only) and NL (nothing transferred). A yyy routine is expressed in the form MM=*addr1* (see manual). Input devices may not be routed to output devices.

ROUTE,PR

ROUTE,DO.DO,PR

SETCOM,*options* (Model III only)

Set RS-232 interface parameters. Only the parameters specified are changed. Options are:

WORD=*w1* — *w1* is the number of bits per transmission byte: 5,6,7 or 8.

BAUD=*br* — *br* is the baud rate for both sending and receiving: 50,75,110,134,150,300,600,1200,1800,2000,2400,3600,4800,7200,9600 and 19200.

STOP=*sb* — *sb* is the number of stop bits: 1 or 2.

PARITY=*pp* — *pp* is the parity: 1 = odd, 2 = even and 3 = no parity.

WAIT or NOWAIT — indicates whether or not the RS-232 is to

wait on transmission/receiving of each byte.
OFF — turn off the RS-232 interface. No other options allowed if OFF specified.

SETCOM,WORD=8,BAUD=300,PARITY=1, WAIT
SETCOM, OFF

STMT,msg Display the message *msg*.

STMT, PHASE ONE COMPLETED

SYSTEM,pwdn1.options

Change and/or display the system options in the control sector of the system diskette mounted on drive *dn1*. These options determine the system configuration at subsequent re-boots when this diskette is the system diskette. Options are:

AA=*yn* — Passwords enabled?
AB=*yn* — Run-only mode enabled?
AC=*yn* — Keyboard debounce enabled? (Model I only)
AD=*yn* — 'JKL' for screen print enabled?
AE=*yn* — '123' for DEBUG enabled?
AF=*yn* — 'DFG' for MINI-DOS enabled?
AI=*yn* — Lower case mode installed? (Model I only)
AJ=*yn* — DOS's keyboard intercept routine enabled? If N, see manual for side effects, especially Chaining.
AL=*a/* — *a/*=the number (1 to 4) of physical drives in the system.
AM=*am* — *am*=disk I/O tries (i.e.,10) before error declared.
AN=*an* — The DIR command default drive number is *an*.
AO=*ao* — Drive *ao* is first and lowest drive used when creating a new file where a drive is not specified.
AP=*ap* — Default HIMEM address.
AQ=*yn* — CLEAR key enabled?
AR=*yn* — COPY formats 5 and 6 allowed without diskette password checking?
AS=*yn* — BASIC input text strings forced to upper case? (Model I only.)
AT=*yn* — Chaining in byte mode, instead of record?
AU=*yn* — Use clock driven repeat key function?
AV=*av* — If AU=Y, delay *av* 25ms intervals before key's first repeat.
AW=*aw* — # (i.e. 3) of write-with-verify disk I/O tries before declaring error.
AX=*ax* — *ax* is the highest ASCII code for the printer.
AY=*yn* — Ask for date and time at DOS unrecognizable reboots?
AZ=*yn* — Ask for date and time at DOS recognizable boots?
BA=*yn* — Set 'ROUTE,DO,NL' state?
BB=*yn* — Clock interrupts 50 times per second instead of 60? (Model III only.)
BC=*yn* — Operator allowed to pause or cancel chaining?
BD=*yn* — Hold down ENTER during reboot overrides AUTO command?
BE=*yn* — DOS command R enabled?
BF=*yn* — Set 'LCDVR,*yn*' state. (Model I only.)
BG=*yn* — Set 'LC,*yn*' state.
BH=*yn* — Set 'BLINK,*yn*' state.
BI=*bi* — Set cursor character = *bi* (i.e. 176).
BJ=*bj* — *bj* is integer CPU speed multiple (i.e., 1,2,3) to help DOS cope with a faster CPU.
BK=*yn* — WRDIRP command and DIRCHECK functions W and C enabled?
BN=*yn* — Write directory sectors readable by Model III NEWDOS/80 instead of by Model I TRSDOS. (Model I only.)
SYSTEM 0, AL=4, AA=Y, AU=Y, AV=20, AT=Y
SYSTEM, 0

TIME Display the current time

TIME,time1 Set *time1* as the current time

TIME,09:30:00

VERIFY,*yn* Force verify read after every sector write
VERIFY, N

WRDIRP,*dn1* Write directory sectors protected

On the Model III, rewrite the directory sectors for the diskette mounted on drive *dn1* to have address mark F8. On the Model I, rewrite the directory sectors to have address mark FA (if SYSTEM option BN=N) to make the diskette useable on all Model I systems. (including NEWDOS/80 Versions 1 or 2) or F8 (if SYSTEM option BN=Y) to make the diskette useable interchangeably on Model I and III under NEWDOS/80 Version 2. The actual directory data is not changed in any way.

WRDIRP,1